# Decontamination and Volume Reduction System (DVRS) Project Midyear Review

**May 27, 1999**

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# Presentation Outline

- Project Background and Objectives
- Correlation to Site Technical Needs
- Project Technical Status
- Project Cost/Schedule Status
- Future Activities

# The Problem

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# Project Mission

- Adapt and integrate existing and emerging technologies to resolve the DOE-wide legacy of oversize metallic TRU waste that is currently “un-disposable”.
- Provide baseline technology solutions for managing future waste without the need for extended interim storage.

# DVRS Objectives

- Eliminate FRP crated items
- Convert TRU to LLW
- Consolidate TRU items/LLRW residues
- WIPP certifiable waste forms/packages
- Test Bed for LSDDP technology trials
- Avoid future waste storage costs

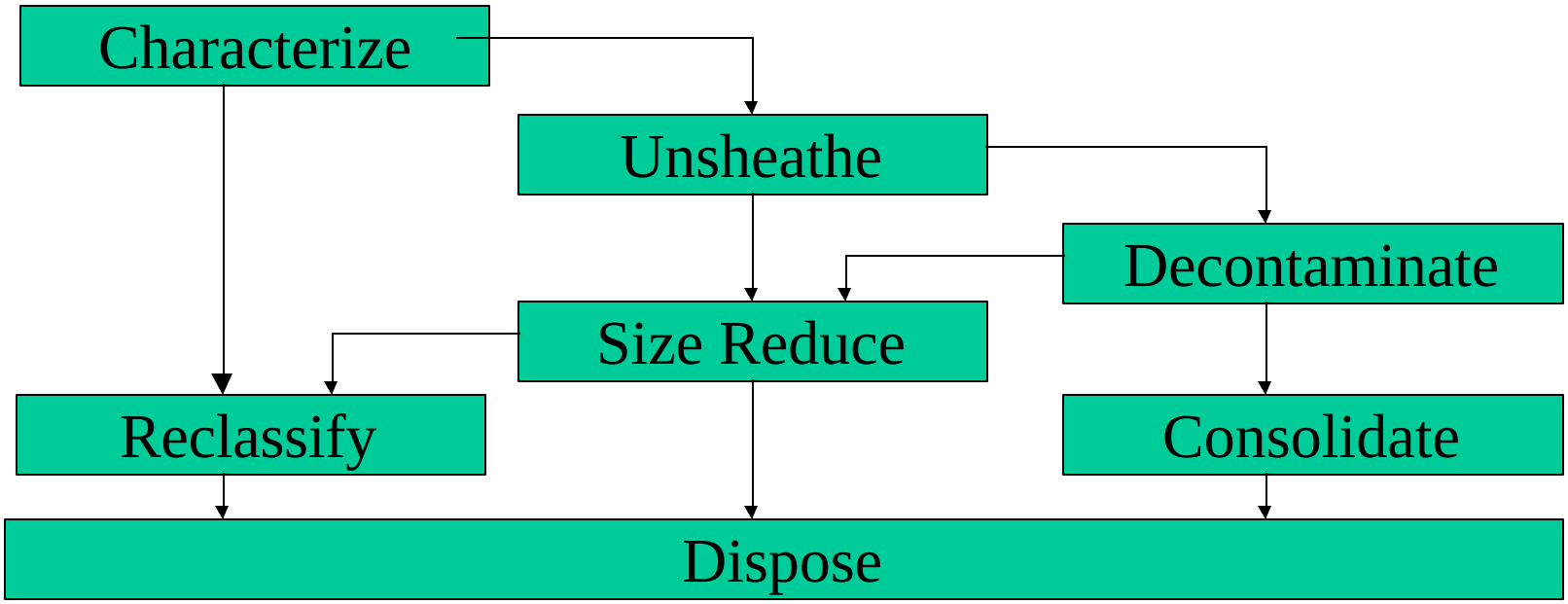
# Over-Size Metallic TRU Waste

- 28,000 $m^3$ of TRU boxed waste in DOE
  - 2400 $m^3$ at LANL in storage
  - 3000 $m^3$ from future D&D at LANL
  - 8200 $m^3$ at RFETS
  - 150 oversized crates at INEEL AMWTP
  - 58 steel boxes at NTS
  - 30 oversized crates at LLNL

# The DVRS Team

- EM-50/ EM-30 Sponsors
- LANL Deployment Team
- Industrial Technology Partners
- Large Scale Demonstrations

# The DVRS Process



# DVRS Process Flow

LINC

Unsheathe FRP

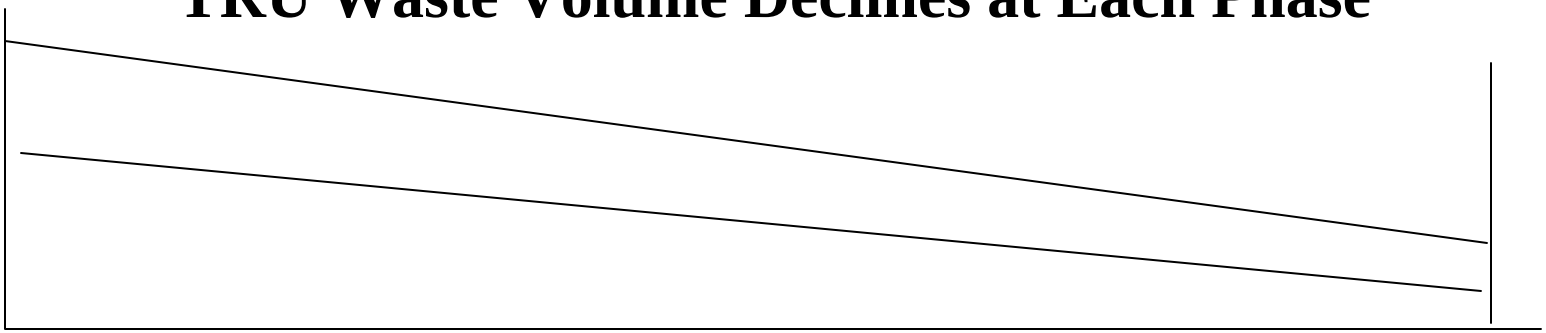
Decon GB

Consolidate GB

NDE/RTR

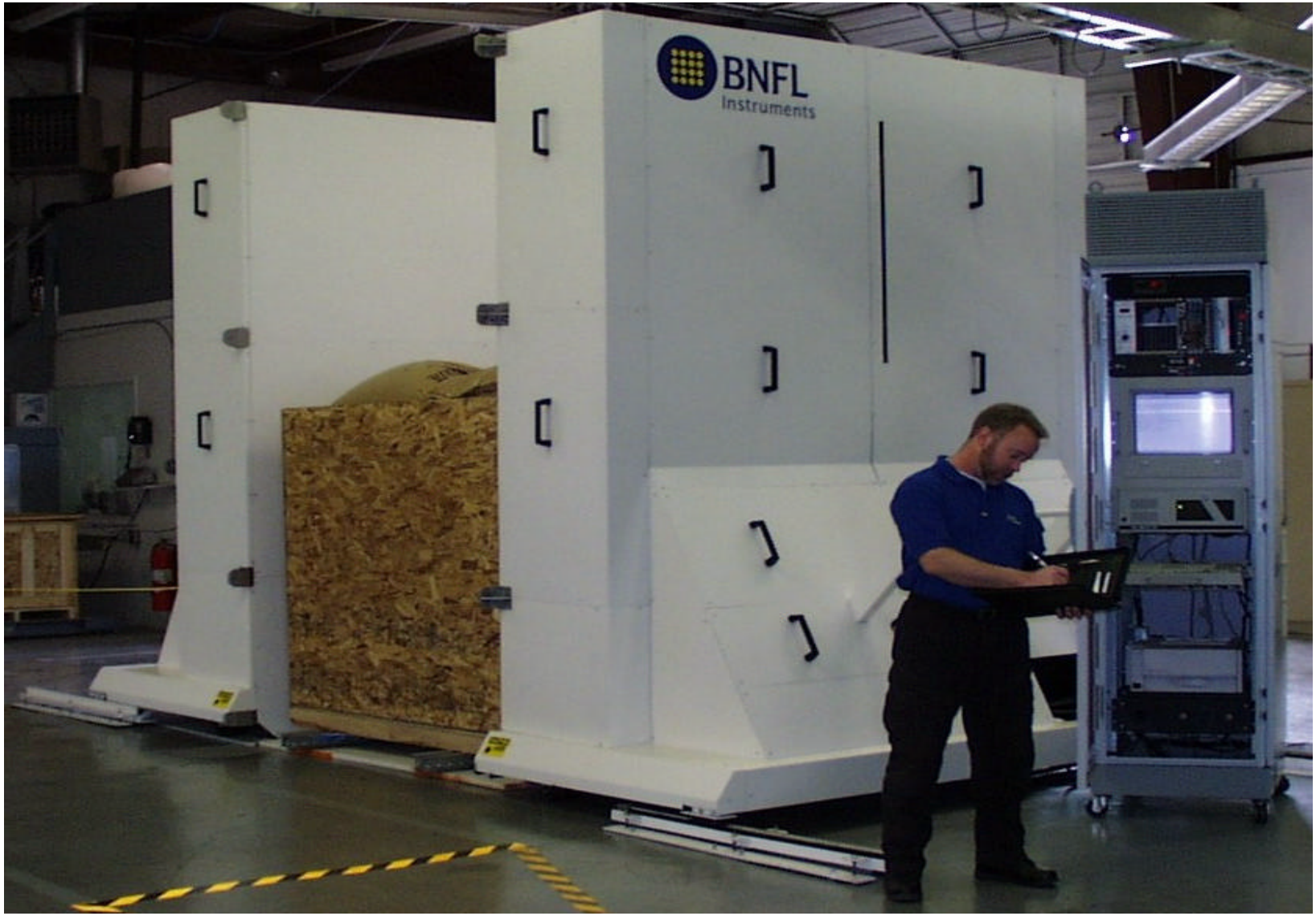
Dismantle GB

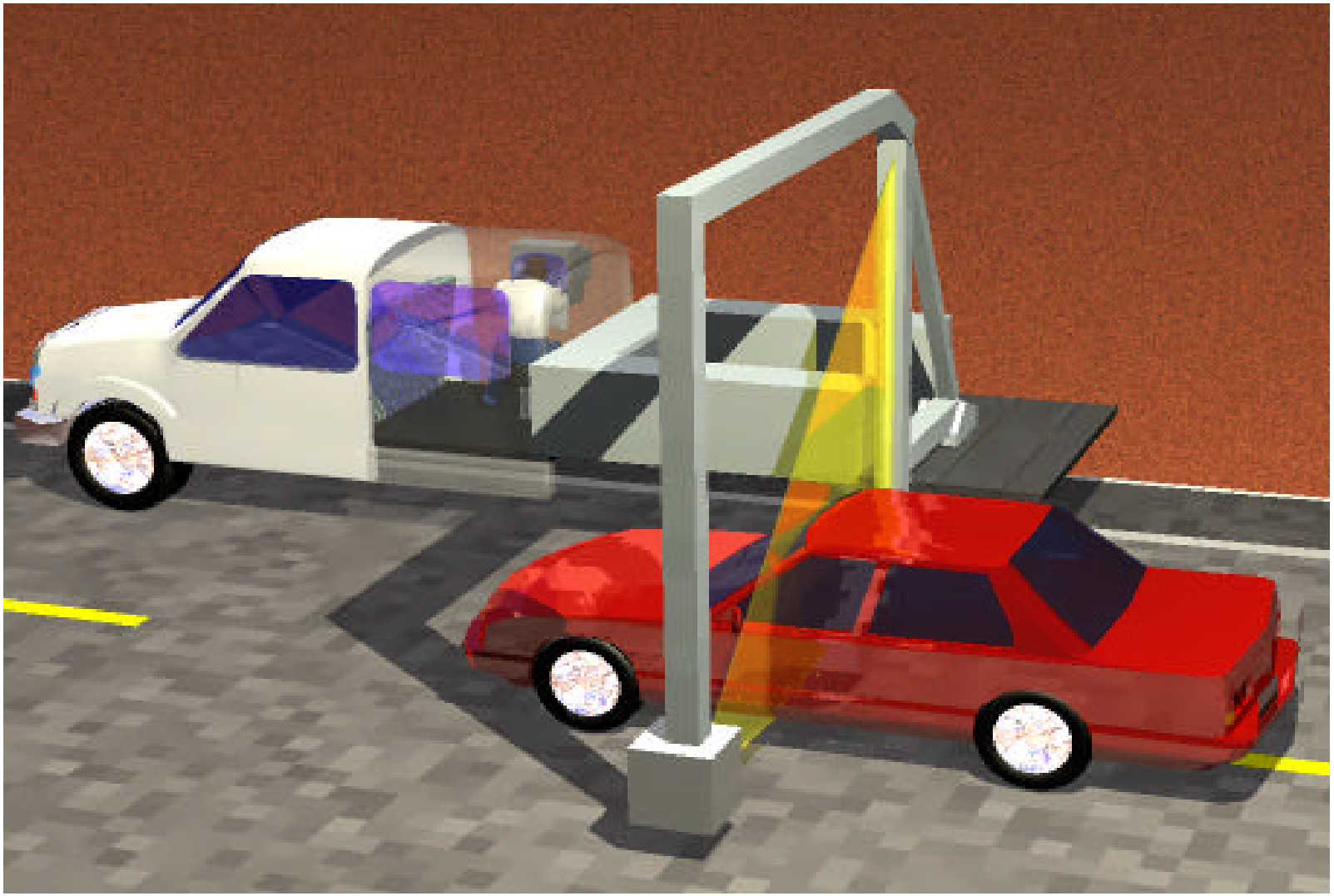
## TRU Waste Volume Declines at Each Phase



# Characterization

- External Physical Assessment
- Radiological Assay
- Internal X-Ray Assessment

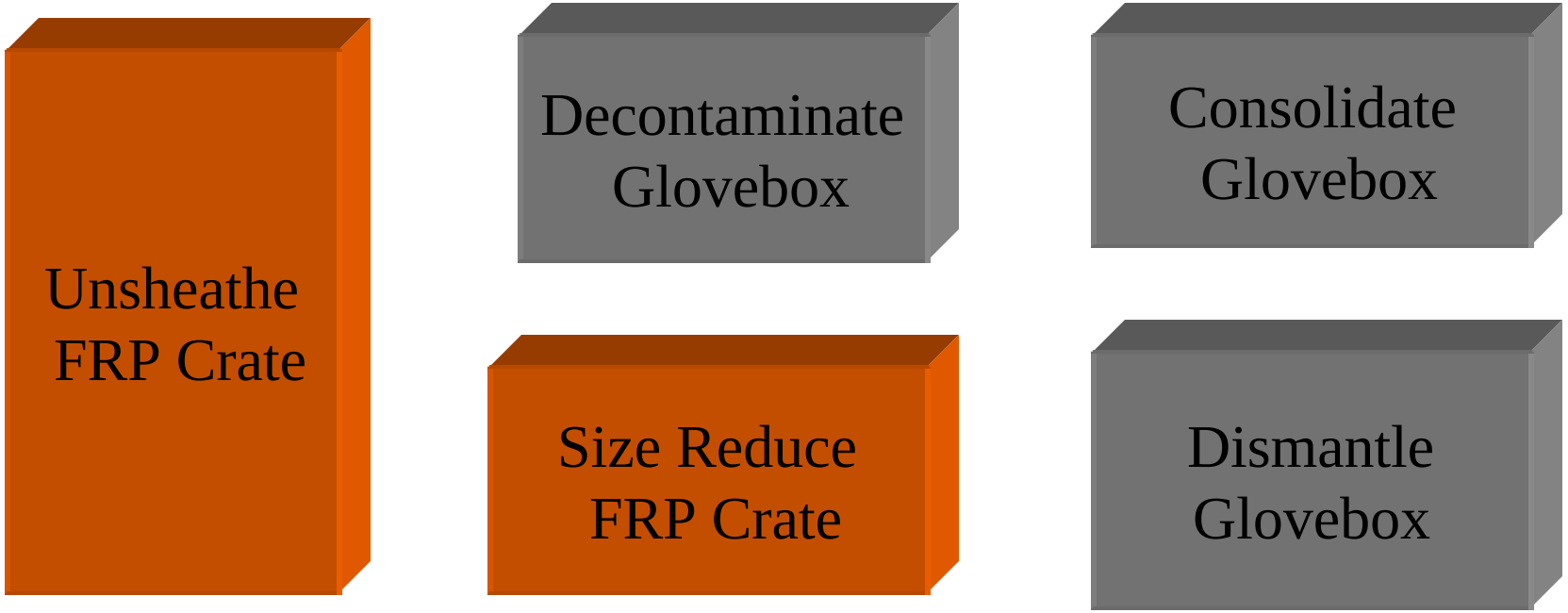

BNFL
Instruments



# Characterization will:

- Confirm Existing Records/Knowledge
- Identify “Low Hanging Fruit”
- Identify “Problem Packages” to be deferred
- Provide “Blue Prints” for DVRS Operators
- Allow “reclass” of some TRU to LLRW

# Confinement System

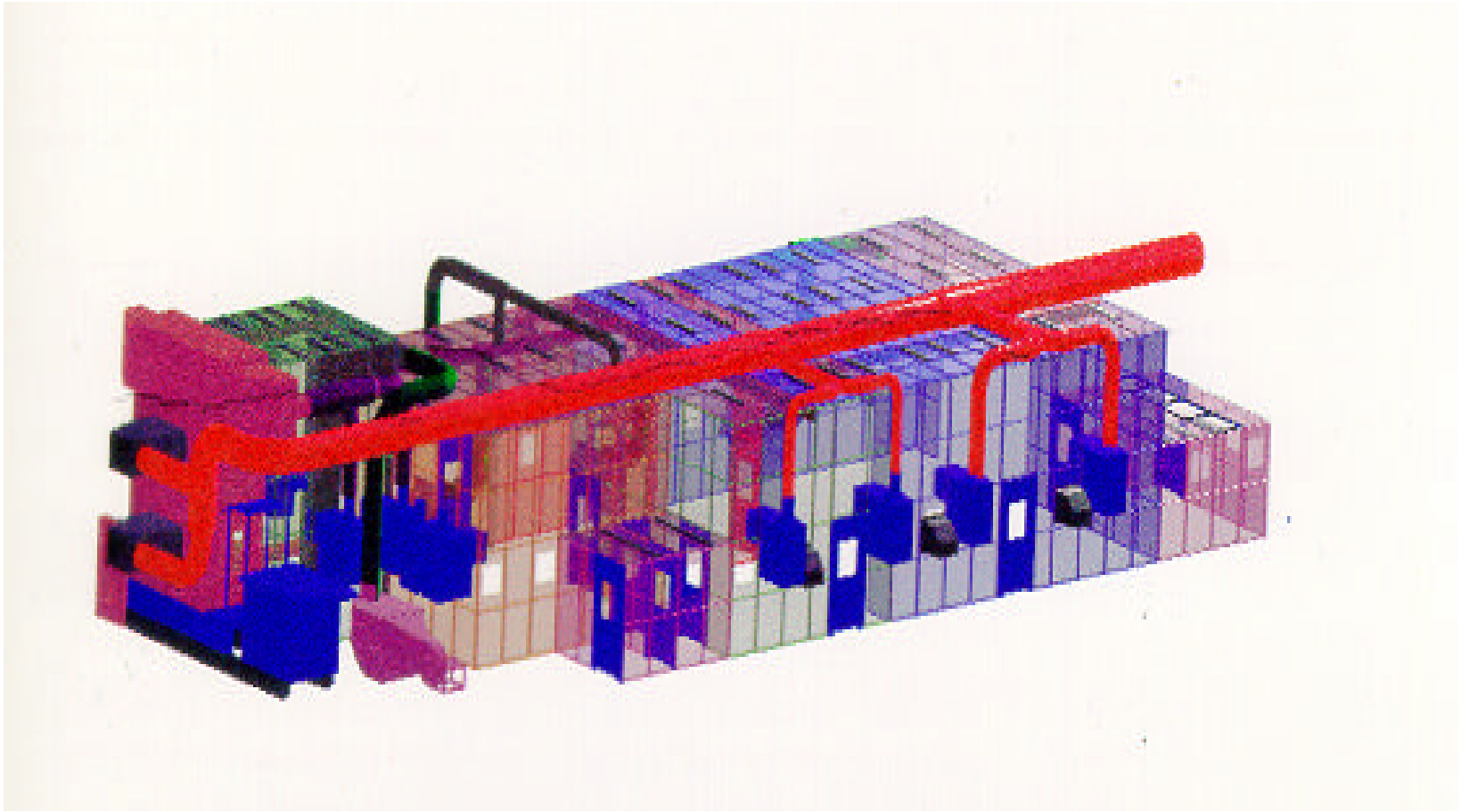


# Confinement Approach

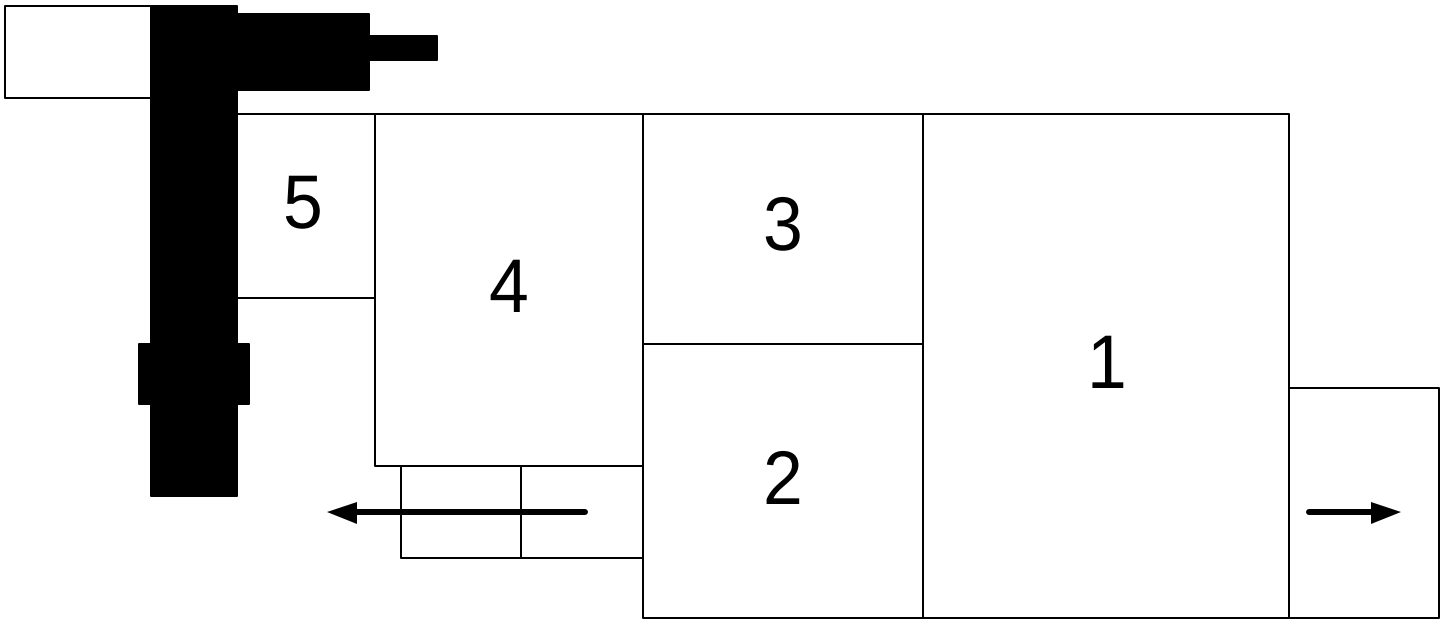
- 2500 $ft^2$ working area
- 5 contained work zones
- Active HEPA Ventilation
- Negative air pressures
- Active Fire Suppression
- Integrated Radiation Monitoring

# Secondary Confinement

# Primary Confinement



# Work Area Layout



# Active HEPA Ventilation

# Unsheathing/Sizing

- Pry Bars/Hammers
- Nibblers
- Shears
- Circular Saws (TBD)
- Reciprocating Saw (TBD)

# Decontamination

- Strippable Paints
- Physical Abrasion
- Surfactants/Cleaners
- Pressure Wash (TBD)
- Electropolishing (TBD)

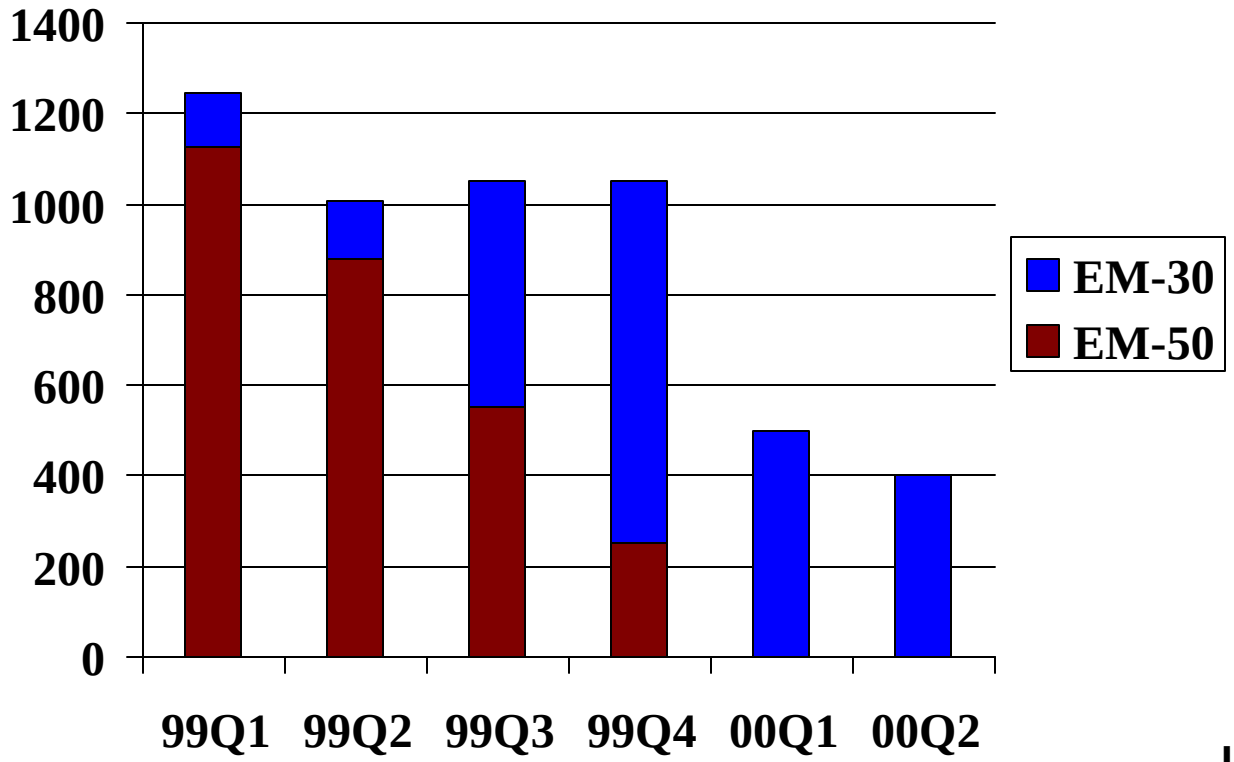
# Contamination Control

- Strippable Paints
- Chemical Cleaners
- Asbestos “Lock-Down”

# Secondary Wastes

- Standard Waste Boxes
  - FRP Crate Materials
  - Scrap Metals/Glovebox Components
- 55 gal Drums
  - PPE
  - “Decon” Wipes/Sorbent
  - Metal Pucks

# Project Expenditures

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# FY99 Project Goals

- BNFL “Slab Detectors” in Use (6/99)
- Portable Gamma Radiography In Use (7/99)
- Enclosure Design 100% Complete (9/99)
- Electrical Upgrade 100% Complete (9/99)
- Secondary Confinement Installed (9/99)
- Shear/Bailer Installed/ InTesting (9/99)
- Primary Confinement System Onsite (9/99)
- Ventilation System Onsite (9/99)

# FY00 Project Goals

- Completion of Primary Confinement (1/00)
- Completion of HVAC System (1/00)
- Completion of Fire Suppression (2/00)
- Procedure Validation Complete (2/00)
- Training/Qualification Complete (2/00)
- ORR/RA Complete (4/00)
- Start-up Authorization (6/00)

# Communications

- Poster at Spectrum 99
- Poster at Waste Management 99
- Close linkage with LANL LSDDP and site representatives from RFETS, INEEL, Hanford
- Linkage to NTS ASTD (Laser cutting for opening steel boxes)

# Future Communications

- Status report for DVRS (October 1999)
- Final report after start-up including lessons learned
- Communicate results to DOE complex